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Which Stroke First?

Stephen Langendorfer, Editor

As I was in the process of composing a *different* editorial for this final issue of the seventh volume of the *International Journal of Aquatic Research and Education*, I received a most fascinating query from colleagues, wondering if I had an opinion. Of course, I did! The inquiry caused me to alter the topic of this opinion piece and go in quite a new direction. The question put to me was one in which I have had a long and abiding interest: Which is the best stroke to introduce *first* in learn-to-swim lessons?

Different First Strokes for Different Folks (and Cultures)

By way of background for less experienced readers, you may not realize that around the world different cultures and countries have vastly different approaches to the question of which swim stroke is the “best” one to introduce first. In much of Europe, Asia, and Japan, the strong preference is to encourage the teaching and learning of the breaststroke. The rationale is that the breaststroke offers a front resting stroke that uses a symmetrical arm and leg action and a simple forward breathing pattern. Critics of breaststroke, of course, point out how challenging the breaststroke kick (i.e., whip kick) is for beginners to learn along with the “pull, breathe, kick, glide” stroke coordination timing pattern.

Interestingly, in North America (i.e., the U.S. and Canada) and in Australia, learn-to-swim programs primarily emphasize teaching and learning the front crawl stroke. The popularity of front crawl swimming likely dates back to the 1920s when Olympic swimming champions, Johnny Weismuller and Buster Crabbe, went on to star in the movies, with Weismuller often showing off his swimming prowess in his popular role as Tarzan. Interestingly, despite its popularity, the front crawl logically has little to recommend it as a first stroke for novices, due to the difficulty of the overarm recovery and rotary breathing. Of course, the front crawl is easily the fastest and most efficient competitive swimming stroke when performed by expert swimmers.

The first stroke question was raised because a prominent swimming coach in The Netherlands where the traditional first stroke is the breaststroke has been advocating to switch to teaching the front crawl stroke first as one mechanism for improving the country’s success in elite competitive swimming. Apparently, his rationale is that if instructors introduce the crawl stroke first, it will give swimmers more opportunity to practice and greater motivation to master the crawl which will increase the number of elite competitive swimmers who he can train on his national swimming team. I found it very interesting to learn that statistics show

that 90% of people in The Netherlands can pass a combined swim test involving 100 meters of breaststroke, several minutes of treading and floating, and at least 25 meters distance for other strokes (Joost Bierens, personal communication). I found the Dutch statistics to be a phenomenal measure of success for their instructional swimming programs which teach the breaststroke before any other strokes. This degree of success (e.g., 90% of the populace able to swim) is unparalleled among countries around the world, especially the United States and Canada.

The Wrong Question

I would like to propose that the first stroke question is simply the *wrong question* to ask for at least two reasons: (1) the question presupposes that individuals are capable only of learning one stroke at a time and (2) the question also assumes that learning to perform strokes is the primary and first order of learn-to-swim lessons. I argue that both assumptions ought to be rejected.

To the degree that the process of acquiring swimming strokes is like that of learning other motor skills then it is clear that persons acquire a number of skills simultaneously and in parallel, although some skills on average do reach mastery level sooner than others. Of course, if the acquisition of swimming strokes is analogous to the process of acquiring fundamental foot locomotor skills on land, then perhaps some strokes (like some foot locomotor skills [e.g., walking or taking steps]) naturally begin to be learned earlier than others. It is quite obvious that walking is the first terrestrial skill that humans begin to acquire, followed six or more months later, on average, by initial attempts at jumping, running, and/or leaping, all which require a flight phase or period in which both feet are at least briefly off the surface. To my knowledge, there is only one unpublished research study that has begun to validate the order of acquisition of terrestrial locomotor skills (Mullenax & Rivera, 2011) and only two published studies (Harrod & Langendorfer, 1991; Langendorfer & Chaya, 2010) at this point that have even begun to examine the order in which aquatic skills may be acquired. All of these studies used Guttman's (1950) scalogram procedure to examine group tendencies, not individual longitudinal orders, which ultimately are needed to verify any robust order of acquisition.

Before humans attempt even primitive levels of terrestrial foot locomotor skills, they first must acquire a certain competency with so-called postural and equilibrium skills (e.g., righting skills, parachute or propping skills, and tilting skills) that first enable children to control their body and extremities against gravitational force. And before human infants attempt any upright, bipedal locomotor skills, they have spent months exploring how to move about on all four extremities by crawling, creeping, rising to standing and sitting from standing, and cruising by moving from object to object while holding on. In a very analogous manner, swimming strokes are never the first aquatic items acquired, nor should they be. To be successful in moving efficiently and effectively through a liquid aquatic medium, humans must first master, to a certain degree of competence, the ability to maintain their posture and equilibrium in this foreign medium. After they have gained some control over maintaining their body position, they must experiment with changing that body position as well as altering the direction in which they are facing. Finally, they need to master the aquatic equivalent to terrestrial crawling and creeping which, in the water, is variously called "dog paddle," "beginner stroke," or even "human

stroke.” In this primitive form of a swim stroke, the swimmer paddles, usually with alternating arms and legs, while recovering the arms underwater. In some cultures, the alternating arm action is replaced by a simultaneous sweeping arm action similar to the arm movements in the breaststroke.

American readers from my age bracket may recall that the American Red Cross at one time published *Adapted Aquatics: Swimming for Persons with Physical or Mental Impairments* (1977). I always have been struck by the similarity of what I had observed almost all swimmers learning first to what Louise Priest, the editor for the *Adapted Aquatics* text (1977), called “the five basic safety skills” (Figure 1). Louise felt that all persons, in order to be safe in or around the water, needed to be able to float on the front and back, to control their breathing rhythmically, to turn over from front to back and from back to front, and to change direction. Not surprisingly, those are five of the eight skills currently being proposed as part of the profile for someone who is “water competent” in a swimming pool (please note: as I have argued previously, water competence is task- and situational-dependent).

I conclude that rather than debating “Which stroke first?” we should be identifying which *water competence skills* do all swimmers need to acquire before even considering which formal stroke(s) they might learn. To be minimally water competent in and around a pool, I would argue, is what Louise Priest called being able to perform the “five basic safety skills” (American Red Cross, 1977). Once a swimmer is competent enough to stay up in the water, control their breathing, and change both direction of travel and position in the water, they are demonstrating a basic competence sufficient to be safe in or around enclosed bodies of water (obviously, with supervision). Because the five basic safety skills are *foundational competencies*, it suggests that anyone who can adequately demonstrate those five



safety competencies ought to find acquiring more advanced aquatic skills such as formal strokes to be much simpler, regardless of whether it is the elementary backstroke (my favorite for novice adults), the breaststroke, the sidestroke, or even the front crawl stroke.

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